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ORIGINAL

Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 20554

In Re Applications of	)	MM Docket No. 93-75
	)	
TRINITY BROADCASTING OF FLORIDA, INC.	)	BRCT-911001LY
	)	
For Renewal of License of Television Station WHFT(TV) Miami, Florida	)	
	)	
GLENDALE BROADCASTING COMPANY	)	BPCT-911227KE
	)	
For Construction Permit Miami, Florida	)	

VOLUME III-B

HEARING EXHIBITS

TRINITY BROADCASTING OF FLORIDA, INC.
TRINITY BROADCASTING NETWORK
NATIONAL NATIONAL MINORITY TELEVISION, INC.

TBF Exhibits 203-208

TRINITY BROADCASTING OF FLORIDA, INC.,

TRINITY BROADCASTING NETWORK,

NATIONAL MINORITY TELEVISION, INC.

Mullin, Rhyne, Emmons and Topel, P.C.
1000 Connecticut Ave. - Suite 500
Washington, D.C. 20036-5383
(202) 659-4700

VOLUME III-B

HEARING EXHIBITS

TRINITY BROADCASTING OF FLORIDA, INC.
TRINITY BROADCASTING NETWORK
NATIONAL MINORITY TELEVISION, INC.

Washington, D.C. 20554

Approved by OMB
3060-0016
Expires 10/31/91

APPLICATION FOR AUTHORITY TO CONSTRUCT OR MAKE CHANGES IN A LOW POWER TV, TV TRANSLATOR OR TV BOOSTER STATION

COPY

(Carefully read instructions before filling out form - RETURN ONLY FORM TO FCC)

For Commission Fee Use Only		For Applicant Fee Use Only
RECEIVED MAR 9 1989 FCC	FEE I $705263 FEE TYPE: FEE AMT: ID SEQ:	Is a fee submitted with this application? [XX] Yes [ ] No If No, indicate reason therefor (check one box): [ ] Nonfeeable application Fee Exempt (See 47 C.F.R. Section 1.1112) [ ] Noncommercial educational licensee [ ] Governmental entity

DUPLICATE

For Commission Use Only
File No. BPTTL890309PA

SECTION I - GENERAL INFORMATION

1. Name of Applicant	Address		
Raystay Company	P.O. Box 38		
	City: Carlisle	State: PA	Zip Code: 17013
	Telephone No. (include area code): (717) 245-0040		

2. This application is for: (check one box)

[X] Low Power Television [ ] TV Translator [ ] TV Booster

(a) Proposed Channel No.	(b) Community to be served:	
	City	State
23	Lancaster	PA

(c) Check one of the following boxes:

[X] Application for **NEW** station

[ ] **MAJOR** change in licensed facilities, call sign: _____

[ ] **MINOR** change in licensed facilities; call sign: _____

[ ] **MAJOR** modification of construction permit; call sign: _____

File No. of Construction Permit: _____

[ ] **MINOR** modification of construction permit; call sign: _____

File No. of Construction Permit: _____

[ ] **AMENDMENT** to pending application; Application file number: _____

NOTE: It is not necessary to use this form to amend a previously filed application. Should you do so, however, please submit only Sections I and VII and those other portions of the form that contain the amended information.

Federal Communications Commission

TBF

Docket No. 93-75 Exhibit No. 203

Presented by E Summers TBF

Disposition: Identified 12.2.93

Received 12.2.93

Rejected

Reporter C. Williams

Date 12.2.93

NOTE: Applicants for new stations only:

1. Applicant is (check one of the following):

☐ Individual	☐ General Partnership	☒ Corporation
☐ Other	☐ Limited Partnership	☐ Unincorporated Association

(a) If the applicant is a legal entity other than an individual, partnership, corporation or unincorporated association, describe in an Exhibit the nature of the applicant. — Exhibit No. N.A.

(b) For LPTV and TV translator applicants only:

If the applicant is an individual, submit as an Exhibit the applicant's name, address and telephone number (including area code). — Exhibit No. N.A

If the applicant is a partnership, whether general or limited, submitted as an Exhibit the names, addresses, and telephone numbers (including area code) of all general and limited partners (including silent partners), and the nature and percentage of the ownership interest of each partner. — Exhibit No. N.A.

If the applicant is a corporation or an unincorporated association, submit as an Exhibit the names, addresses and telephone numbers (including area code) of all officers, directors and other members of the governing board of the corporation or association and the nature and the percentage of their ownership interests in the applicant (including stockholders with interests of 1% or greater). — Exhibit No. 1

2. For LPTV and TV translator applicants only, submit as an Exhibit a list of all other new applications filed during the same window period as this application in which the applicant or any principal of the applicant has any interest. Include the percentage of that interest for each listed application, as well as the other applicant's name (if different) and the channel number and location of the proposed station. — Exhibit No. 2

NOTE: No more than five (5) applications for new low power TV or TV translator stations may be filed during a single window period by any applicant, or by any individual or entity having an interest of 1% or more in applications filed in the same window period. This limit does not apply to minor or major change applications or to TV booster applications.

CITIZENSHIP AND OTHER STATUTORY REQUIREMENTS

3. (a) Is the applicant in compliance with the provisions of Section 310 of the Communications Act of 1934, as amended, relating to interests of aliens and foreign governments? — ☒ Yes ☐

(b) Will any funds, credit, or other financial assistance for the construction, purchase or operation of the station(s) be provided by aliens, foreign entities, domestic entities controlled by aliens, or their agents? — ☐ Yes ☒

If Yes, provide particulars as an Exhibit. — Exhibit No.

4. (a) Has an adverse finding been made, or an adverse final action taken by any court or administrative body as to the applicant or any party to this application in a civil or criminal proceeding brought under the provisions of any law related to the following: any felony; broadcast-related antitrust or unfair competition; criminal fraud or fraud before another governmental unit; or discrimination? — ☐ Yes ☒

(b) Is there now pending in any court or administrative body any proceeding involving any of the matters referred to in 4(a)? — ☐ Yes ☒

If the answer to 4(a) or 4(b) is Yes, attach as an Exhibit a full disclosure concerning the persons and matters involved, including an identification of the court or administrative body and the proceeding (by dates and file numbers), a statement of the facts upon which the proceeding was based or the nature of the offense alleged or committed, and a description of the current status or disposition of the matter. — Exhibit No.

REMINDER: Do not complete the following without reading carefully the definitions and other information set out in the foregoing pages.

CERTIFICATION OF PREFERENCES

MINORITY

1. The applicant certifies that it is entitled to and seeks to claim minority preference. ☐ Yes ☒

If yes, complete the following:

Name	Address	Percentage interest in the applicant	Minority Group

DIVERSIFICATION PREFERENCE

2. The applicant certifies that it and/or its owners have no interest, in the aggregate, exceeding 50 percent in any media of mass communications. ☐ Yes ☒ N

If Yes, DO NOT respond to questions 3 and 4.

3. The applicant certifies that it and/or its owners have no interest, in the aggregate, exceeding 50 percent in more than three mass communications media facilities. ☐ Yes ☒ N

4. The applicant certifies that it and/or its owners have no interest, in the aggregate, exceeding 50 percent in a media of mass communications in the same area to be served by the proposed station. ☒ Yes ☐ N

SECTION VI - EQUAL EMPLOYMENT OPPORTUNITY PROGRAM

1. For Low Power TV applicants, will this station employ on a full-time basis five or more persons? ☐ Yes ☒ No

If Yes, the applicant must include an EEO program called for in the separate Broadcast Equal Employment Opportunity Report (FCC Form 396-A).

SECTION VII - CERTIFICATIONS

1. For new station and major change applicants only, the applicant certifies that it has or will comply with the public notice requirement of 47 C.F.R. Section 73.3580(g). ☒ Yes ☐ No

2. For applicants proposing translator rebroadcasts who are not the licensee of the primary station, the applicant certifies that written authority has been obtained from the licensee of the station whose programs are to be retransmitted. ☐ Yes ☐ No

N.A.

Primary station proposed to be rebroadcast:

Call Sign	City	State	Channel No.

3. The applicant certifies that it has contacted an authorized spokesperson for the owner of the rights to the proposed transmitter site and has obtained reasonable assurance that the site will be available for its use if this application is granted. ☒ Yes ☐ No

That person can be contacted at the following address and telephone number:

Name		Mailing Address or Identification	
Edward Rick III		Realy-Mix Concrete Co. of Lancaster, PA	
City	**State**	**ZIP Code**	**Telephone No. (include area code)**
Lancaster	PA	17603	(717) 394-0637

The APPLICANT hereby waives any claim to the use of any particular frequency as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. (See Section 304 of the Communications Act of 1934, as amended.)

The APPLICANT acknowledges that all the statements made in this application and attached exhibits are considered material representations, and that all exhibits are a material part hereof and incorporated herein.

The APPLICANT represents that this application is not filed for the purpose of impeding, obstructing, or delaying determination on any other application with which it may be in conflict.

In accordance with 47 C.F.R. Section 1.65, the APPLICANT has a continuing obligation to advise the Commission, through amendments, or any substantial and significant changes in information furnished.

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND IMPRISONMENT. U.S. CODE, TITLE 18, SECTION 1001.

I certify that the statements in this application are true, complete and correct to the best of my knowledge and belief, and are made in good faith.

Name of Applicant	Signature
Raystay Company	David A. Gardner V/P
Title	**Date**
Vice President	David A. Gardner March 7, 1989

EXHIBIT 1

The officers, directors, and ownership of voting stock in Raystay Company is as follows:

Name	Officers	Percentage of Voting Stock
George F. Gardner	President, Treasurer and Director	50.06%
Estate of Marian B. Gardner, George F. Gardner and David A. Gardner Co-Executors	---	25.55%
David A. Gardner R.D. 1 Landisburg, PA 17040	Vice-President, Secretary, and Director	8.13%
Michael C. Gardner 580 Boxwood Lane Carlisle, PA 17013	---	8.13%
David A. Gardner Trustee For Jon C. Gardner c/o Box 38 Carlisle, PA 17013		8.13%

EXHIBIT 2

Raystay Company is filing the following five low power television applications in the window period ending March 10, 1989.

Location of Proposed Station	Channel Number
Red Lion, PA	56
Lebanon, PA	55
Lebanon, PA	38
Lancaster, PA	23
Lancaster, PA	31

EXHIBIT 3

Mr. George F. Gardner, President, Director and principal stockholder in Raystay company, is the President, Director, and sole stockholder in Adwave Company (Adwave), applicant for construction permit for a new FM broadcast station at Fort Lauderdale, Florida (MM Docket No. 84-1113, File No. BPH-830510AL). In a Partial Initial Decision of Administrative Law Judge Joseph Stirmer (FCC 870-20) released June 4, 1987, a misrepresentation/lack of candor issue was decided adversely to Adwave. The Commission had previously directed that all appeals in such cases involving applicants seeking licenses held by RKO General, Inc., be stayed, but has recently set March 16, 1989, as the date for filing of exceptions to such Partial Initial Decisions. Accordingly, Adwave will timely file with the Review Board its appeal of the Partial Initial Decision.

ENGINEERING STATEMENT IN SUPPORT OF AN APPLICATION FOR A CONSTRUCTION PERMIT FOR A NEW LOW POWER TELEVISION STATION ON CHANNEL 23 IN LANCASTER, PENNSYLVANIA

On Behalf of

RAYSTAY COMPANY

EE-1

March 3rd, 1989

ENGINEERING STATEMENT IN SUPPORT OF AN APPLICATION FOR A CONSTRUCTION PERMIT FOR A NEW LOW POWER TELEVISION STATION ON CHANNEL 23 IN LANCASTER, PENNSYLVANIA

On behalf of

RAYSTAY COMPANY

EE-1

Index:

ENGINEERING STATEMENT IN SUPPORT OF AN
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On behalf of
RAYSTAY COMPANY

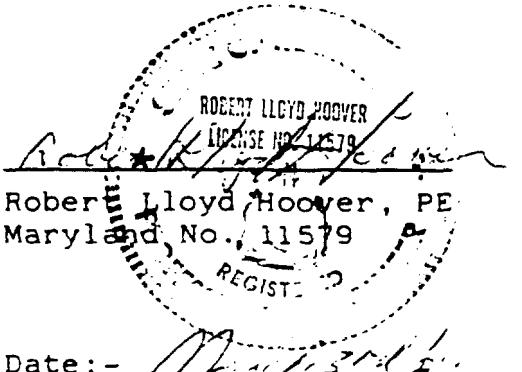
EE-1

DECLARATION

Robert Lloyd Hoover declares and states that he is a Registered Professional Engineer in the State of Maryland and seven other states. He further states that he has been in broadcast engineering since 1948 to date.

He states that he has been retained by Raystay Company for the purpose of preparing an application for a Construction Permit for a new Low Power Television Station on Channel 23 in Lancaster, Pennsylvania.

He further states that the calculations, exhibits and measurements reported herein were made by him personally or under his supervision and all facts contained herein are true of his own knowledge, except where stated to be on information or belief, and as to those facts, he believes them to be true. I declare under penalty of perjury that the foregoing is true and correct.



Robert Lloyd Hoover, PE
Maryland No. 11579

Date:-

1. Facilities requested:

Output Channel No.	Transmitter Rated Power Output	Proposed Community(ies) to be served	
		City	State
23	1.0 kilowatts	LANCASTER	PA

Frequency Offset (check one)

☐ No offset ☒ Zero offset ☐ Plus offset ☐ Minus offset

Translator Input Channel No. n/a

2. Proposed transmitting antenna location:

City	State	County
Lancaster	PA	Lancaster

Address or other description of location:
Erick Rd
Lancaster, PA

Geographical coordinates of transmitting antenna to nearest second

North Latitude			West Longitude		
40 °	03 '	47 "	76 °	19 '	09 "

Attach as an Exhibit a map or maps (preferably topographic, if obtainable, such as Geological Survey quandrangles) of the area of the proposed transmitting antenna location shown drawn thereon the following data:

Exhibit No. EE-1

a. Scale of kilometers
b. Proposed transmitting antenna location accurately plotted.

	Make	Type No.		Output Power P
3. Transmitter:	Acrodyne	TLU/1KACT		1.0 kilowatts
4. Transmission line:	Andrew	LDF7-50A	Length 90 ft	Rated efficiency E for length given (decimal fraction) 0.8898

5. Transmitting antenna ☒ Directional "off-the-shelf" ☐ Directional Composite (Multiple Antennas) ☐ Non-Directional

Manufacturer	Model	Description [1]
Bogner	B16UA	Slot antenna

Orientation of main lobe[2]	Overall antenna structure height above ground [3]	Elevation of Site [4]	Power gain G (multiplier) in the horizontal lobe of maximum radiation relative to a halfwave dipole [5]
Ornted: 286° T Lobes: 286° T & 356° T & 216° T	57.0 meters	103.6 meters	$G_{horz} = 32 \times (0.5)^2 = 8$ for -2 deg beam tilt

Effective radiated power (ERP)
(ERP=P X E X G) 7.12 kilowatts

Height of antenna radiation center above ground 41.8 meters / 137 ft

Height of antenna radiation center above above mean sea level 145.4 meters / 477 ft [6]

1 Give basic type using general descriptive terms such as half-wave dipole, "bow-tie" with screen, corner reflector, 10 element Yagi, 4 element in-phase array, two stacked 5 element Yagis, etc.

2 For directional antennas in the horizontal plane show the direction of the main radiation lobe(s) in degrees with respect to true north in a 360 degree horizontal azimuth, numbered clockwise, with true north as zero azimuth.

3 Show overall height above ground in meters to topmost portion of structure, including highest top mounted antenna and beacon if any.

4 Show the ground elevation above mean sea level in meters at the base of the transmitting antenna supporting structure.

5 Give the actual power gain toward the radio horizon.

6 This is equal to the sum of the site elevation and the height of the antenna radiation center above ground.

6. Attach as an Exhibit a vertical plan sketch for the proposed total antenna structure, including supporting structure, giving overall height of structure in meters above ground, including lighting beacon (if any). Exhibit No. EE-1

7. Will the proposed antenna supporting structure be shared with an AM radio station? ☐ Yes ☒ No

If yes, list the call sign of that station. _____

8. Attach as an Exhibit a polar diagram of the radiation pattern (relative field) in the horizontal plane of the transmitting antenna showing clearly the correct relationship between the major lobe or lobes and the minor lobes of radiation and a tabulation of the pattern at every ten degrees and all maxima and minima. Applicants proposing use of multiple transmitting antennas shall submit a composite radiation pattern. If a non-directional transmitting antenna will be employed, i.e., an antenna with an approximately circular radiation pattern, check here ☐ and omit polar diagram and tabulation. If the antenna manufacturer and model number are on the Commission's list of common "off-the-shelf" directional antennas, check here ☒ and omit polar diagram and tabulation. Provided for reference Exhibit No. EE-1

9. Has FAA been notified of proposed construction ? ☒ Yes ☐ No
If Yes, give date and office where notice was filed: March 3rd, 89, Eastern Regional Office

10. Environmental Statement (See 47 C.F.R. Section 1.1301 et seq.)

Would a Commission grant of this application come within 47 C.F.R. 1.1307, such that it may have a significant environmental impact, including exposure to workers or the general public to harmful nonionizing radiation levels? ☐ Yes ☒ No

If you answer Yes, submit as an Exhibit an Environmental Assessment as required by Section 1.1311. If no, explain briefly why not. See Exhibit EE-1 Exhibit No. -

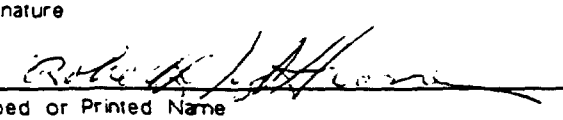
11. Unattended operation:
Is unattended operation proposed? ☒ Yes ☐ No

If Yes, and this application is for authority to construct a new station or to make changes in the facilities of an authorized station which proposes unattended operation for the first time, applicant will comply with the requirements of 47 C.F.R. Section 74.734 concerning unattended operation. ☒ Yes ☐ No

12. Is type approved broadcast equipment being specified? ☒ Yes ☐ No
If No, indicate date equipment was submitted to FCC Laboratory for approval. _____

I certify that I represent the applicant in the capacity indicated below and that I have examined the foregoing statement of technical information and that it is true to the best of my knowledge and belief.

March 3rd, 1989
Date

Signature


Typed or Printed Name
Robert Lloyd Hoover, PE

Telephone No. (include area code)
(301) 983-0054

☐ Technical Director ☒ Registered Professional Engineer ☒ Consulting Engineer

☐ Chief Operator ☐ Other (specify)

ENGINEERING STATEMENT IN SUPPORT OF AN
APPLICATION FOR A
CONSTRUCTION PERMIT FOR A
NEW LOW POWER TELEVISION STATION
ON CHANNEL 23 IN LANCASTER, PENNSYLVANIA
On behalf of
RAYSTAY COMPANY

EE-1

I. GENERAL

This engineering statement has been prepared on behalf of Raystay Company. The purpose of this statement is to request a Construction Permit for a new Low Power Television Station on Channel 23 in Lancaster, Pennsylvania. This is one of five applications being filed by Raystay Company in Pennsylvania.

Tha applicant proposes to operate on Channel 23 with a directional antenna system having a maximum Effective Radiated Power of 7.12 kW in the horizontal plane. An electrical beam tilt of -2 degrees is proposed for the antenna. The applicant proposes to operate with a precise Zero Offset Carrier Frequency.

This application is not a major environmental hazard, as defined by Section 1.1305 of the Rules. The proposed operation is in compliance with the safety standards specified in Section 1.1307(b), that is, the exposure of the general public and workers to the ANSI C95.1 1982 exposure guidelines.

Answers to questions in the Form 346 are provided in the attached statement.

II. PROPOSED OPERATION

A. Proposed location

The proposed site would be on the roof of a building in an industrial complex in Lancaster, Pennsylvania. The geographical co-ordinates of the proposed site are:

N 40° 03' 47" ,
W 76° 19' 09" .

A topographic map showing the proposed site is provided in Figure 1A and the applicable section of that topographic map is provided in Figure 1B. A general area map of the area is shown in Figure 2.

Inasmuch as the overall height of the proposed antenna and its supporting structure would be 57.0 meters (187 feet) agl, the FAA Eastern Regional Office was notifed.

B. Proposed Antenna System & Supporting Structure

The applicant proposes to mount a Bogner type B16UA antenna below another proposed Bogner type B16UA for Channel 31, where both antennas would be supported by a 30-ft (9.1 m) pedestal. The antenna and its supporting structure would be constructed on the roof of a building. The building roof is 90 feet (27.4 meters) agl, which was recently measured with a surveyors cord. The Center of Radiation would be 41.8 meters (137 feet) agl or 145.4 meters (477 feet) amsl. A vertical plan sketch of the proposed antenna and its supporting structure is shown in Figure 3.

The applicant proposes to use a Bogner type B16UA antenna oriented at N-286-E where its main lobes are in this direction as well as N-356-E and N-216-E. The antenna is specified to have a -2 degree beam tilt.

For a -2 degree beam tilt the B16UA antenna Vertical Plane (Shape or Form) Pattern has a relative field strength value of 0.5 in the horizon compared to a maximum value of unity or one at the depression angle of -2 degrees. The Antenna Power Gain in the horizontal plane is 0.25 of that value at the depression angle. That is, multiplying the square of the Vertical Plane (Shape) Pattern value in the horizon times the maximum Power Gain of the Antenna in its depression angle results in a Power Gain in the horizontal plane of 8, viz,

$$G_{\text{at horz}} = (0.5)^2 \times 32 = 8 \quad .$$

The vendor warrants that the Vertical Plane (Shape) Pattern holds in all azimuthal directions; therefore, the ERP in the horizontal plane in all azimuthal directions is equal to or less than 7.12 kW.

C. Operational Specifications

It is proposed to install an Acrodyne type TLU/1KACT LPTV transmitter that is rated to deliver 1000 peak watts into a dummy load. The transmitter is type accepted for Part 74 of the Rules. The transmitter will be specifed to maintain a precise frequency offset of $\pm$ 1 kHz at a specified designation of Zero Carrier Offset from the standard carrier frequency on Channel 23. The Bogner LPTV type B16UA antenna with a -2 degrees beam tilt provides a power gain of 8 above that of a dipole (9 dBd) in the horizontal plane. The antenna would be oriented

at N-286-E, where the main lobes would also point in this direction and N-356-E and N-216-E. A tabulation of the relative field strength in the horizontal plane is provided in Figure 4, and a horizontal plot of these data is shown in Figure 5. The proposed transmission line would be Andrew type LDF7-50A, which has an attenuation of approximately 0.563 dB per 100 feet at the visual carrier frequency of 525.25 MHz. The efficiency for the proposed 90-ft length of cable is approximately 88.98 percent. For 1-kW Transmitter Power Output with a line efficiency of 88.98 percent and antenna power gain of 8, the Effective Rated Power would be 7.12 kW.

D. Proposed Coverage

Inasmuch as the proposed site is within the Lancaster city limits, the 74-dBu contour will provide coverage over all of Lancaster and its immediate vicinity.

III. ENVIRONMENTAL CONSIDERATION

No significant environmental impact would result due to the Commission granting this applicant.

A. Environmental Impact Statement

The applicant proposes to mount its Channel 23 antenna below a Channel 31 antenna, where the two antennas would be supported by a 30-ft (9.15 m) tower on the roof of a building in an industrial complex. The applicant is also applying for an LPTV license on Channel 31 in Lancaster. Such construction would be not be a Major Action.

This application would not come within Section 1.1307 of the Rules. The applicant does not propose to use high intensity lighting. No environmental impact is involved since the proposed site is not in an area that would constitute an environmental impact since it is not located in any known wilderness and/or wildlife areas, historic and/or scenic areas and will not involve extensive changes to the existing terrain features. No known migratory bird or animal path would be blocked by mounting the proposed Channel 23 and Channel 31 LPTV antennas on a 30 ft (9.15-m) tower on a building roof in an industrial complex of Lancaster.

B. National Environmental Policy Act of 1969

This application will not result in radiofrequency radiation in excess of the applicable safety standards specified in Section 1.1307(b), that is, the exposure of workers and the general public would be based upon the

recent ANSI C95.1 1982 exposure guidelines.

In the UHF TV Band the ANSI standard would limit exposure to human beings to less than f/300 mW/cm^2, where f is frequency in megahertz. For Channel 23 the ANSI Radio Frequency Protection guideline would be less than 1.75 mW/cm^2. Measurements on UHF TV antennas after prediction verify that as a least upper bound the Power Density, PD, would be

$$PD = \frac{EIRP}{40\pi r^2} \qquad mW/cm,$$

where EIRP is the Effective Isotropic Radiated Power in watts and r is the appropriate slant distance from the antenna radiation center in meters, for example, to head height or 7 feet (2.13 meters) above the level of the building roof. During normal programming the EIRP is approximately equal to 0.4 times the visual effective radiated power plus the aural effective radiated power times 1.64, where consideration would be given to the square of the Vertical Plane shape or form factor for the antenna, $f(\theta)$, viz,

$$EIRP \sim (1.64)[(0.4)ERP_{vis} + ERP_{aur}] f^2(\theta) \quad .$$

EPA guidelines suggest a reflection co-efficient of 1.6 be adopted. Using this EPA guideline, an EPA value for the Power Density, PD, adjusted for such a reflection co-efficient would be

$$PD' = (1.6)^2 PD \quad .$$

The minimum distance from the Center of Radiation at head height above roof level would be (47-7) feet or 40 feet. The far-field region of a high gain UHF antenna does not obtain for approximately 1500 feet from the antenna. On the roof in the vicinity of the antenna, near-field theory applies. A cautious approach in such a near-field region would be to assume a Vertical Plane Shape factor of 0.25 albeit with a fixed slant range of 40 feet. In addition, the far-field EIRP value is assumed. This latter assumption presumes that the antenna has provided its full gain even in the near-field region. With these assumptions an EPA adjusted Power Density, PD', becomes at head height at any place on the roof,

$$PD' = 1.405 \times 10^{-5} [(0.4)ERP_{vis} + ERP_{aur}] \ mW/cm^2 \quad ,$$

on Channel 23.

For a visual ERP of 28,472 watts and aural ERP of 2847 watts (that actually would not obtain until the far-field region in the main beam at the depression angle of -2

degrees), the EPA adjusted Power Density, PD', becomes 0.2 mW/cm^2. This represents approximately 11.43 percent of the ANSI C95.1-1982 guideline of 1.75 mW/cm^2 at 524 MHz.

The applicant has also applied for an LPTV Construction Permit on Channel 31 in Lancaster, where a similar Bogner B16UA antenna is proposed. The Channel 31 antenna is proposed to be mounted on the 30-ft tower above the Channel 23 antenna. In the event of Commission approval of both applications, a similar approach for the Channel 31 antenna is provided. The proposed Center of Radiation of the Channel 31 antenna would be (79-7) or 72 feet above head height on the roof. A value for the near-field Vertical Plane shape factor of 0.25 is assumed with a fixed slant range of 72 feet. A far-field Effective Radiated Power of 26,979 visual watts and 2698 aural watts is assumed. Using the same procedure as in the Channel 23 case, an adjusted EPA Power Density of 0.058 mW/cm^2 is obtained. This represents approximately 3.04 percent of the ANSI guideline value of 1.91 mW/cm^2 for the Channel 31 frequency of 572 MHz.

Adding the two percentages of ANSI allowable electromagnetic radiation cases for Channel 23 and Channel 31 yields approximately 14.5 percent of the ANSI standard. It can be seen that no radiation hazard will exist on the building roof at head height below the antenna, even with these cautious assumptions. A conservative estimate for the real-world Vertical Plane shape factor in the near-field region on the building roof for both antennas may possibly exceed 0.25, but the slant range was fixed for both antennas. Near the edge of the roof the near-field Vertical Plane shape factor may possibly increase in value but the inverse square of the slant range would become significantly smaller. Rather than assuming the far-field Effective Radiated Power value (at the -2 degree depression angle), it has been your affiant's experience*/ that the real-world

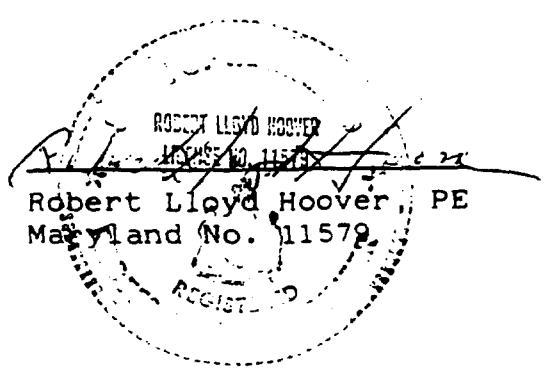
*/ For example, in February 1979 your affiant prepared a deposition for officials of the City of Winston-Salem, North Carolina that predicted the power density using near-field theory for WGNN-TV that would operate with 1500 kW from its antenna mounted on a 30-ft pedestal on top of the Wachovia National Bank Building. Later measurements after WGNN-TV was built confirmed that the predictions were within 10 percent of the measured values. In 1981, your affiant prepared a similar depostion for officials of Multnomah County, Oregon, on behalf of KRLK Broadcasting Corp. In the intervening years a number of predictions and corresponding measurements have been made by your affiant confirming that the power density as would be predicted for the near-field region using the appropriate near-field approach yields power density values generally less than predicted by far-field theory.

Power Density value in such a near-field region would be considerable less and approximately equal to the sum of the Power Densities obtained at head height on the roof from each individual slot or radiator of the antenna, with the Antenna Input Power divided between each such slot or radiator. The final Power Density result is considerable less than this rough approach indicates, but the analysis is rather detailed.

IV. SUMMARY

Raystay Company requests a Construction Permit for a new Low Power Television facility on Channel 23 with precise Zero Frequency Offset in Lancaster, Pennsylvania. The application is in full compliance with the Commission's final rules concerning Low Power Television stations.

March 3rd, 1989



Robert Lloyd Hoover, PE
Maryland No. 11579

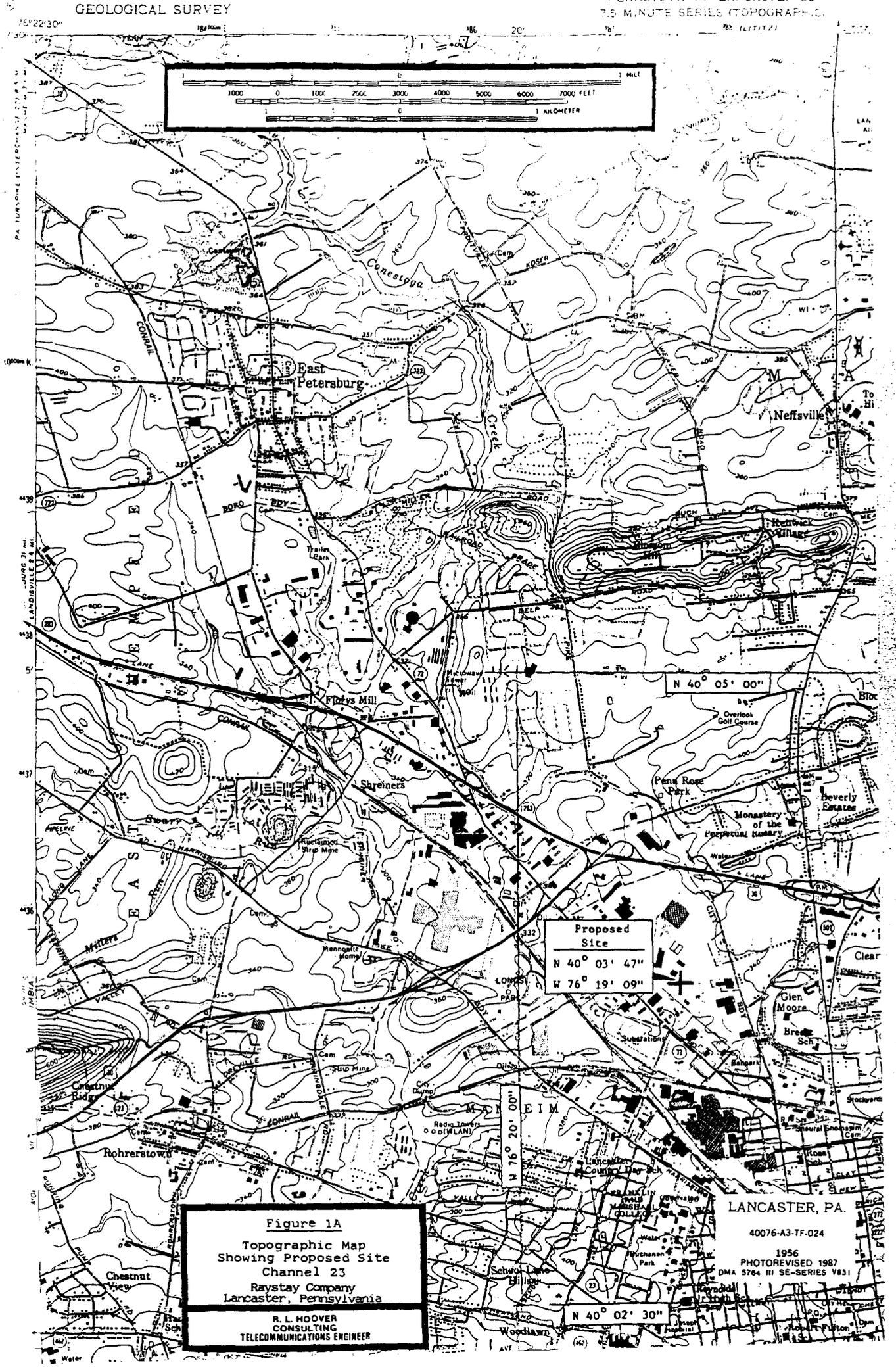


Figure 1A

Topographic Map
Showing Proposed Site
Channel 23
Raystay Company
Lancaster, Pennsylvania

R. L. HOOVER
CONSULTING
TELECOMMUNICATIONS ENGINEER

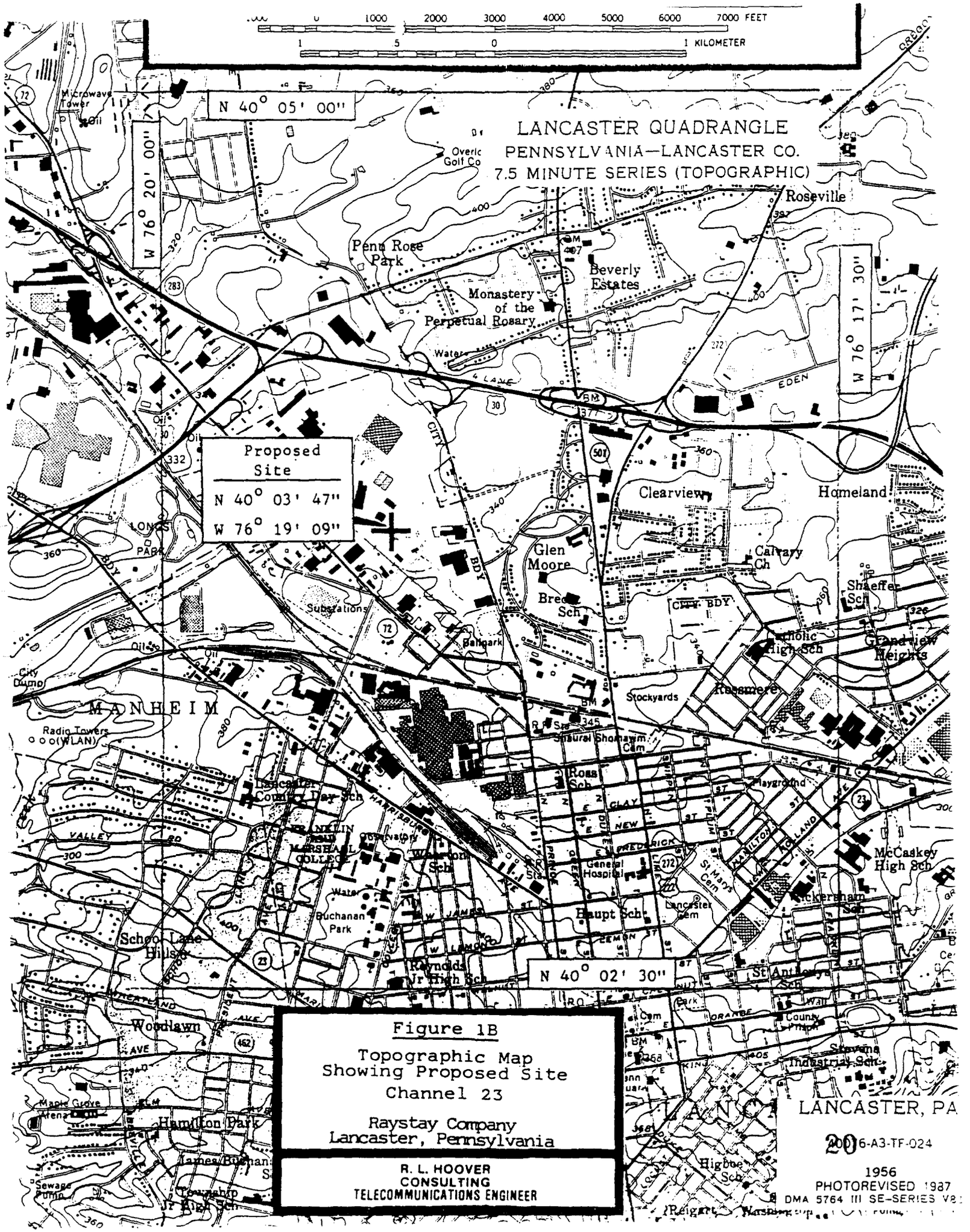


Figure 1B

Topographic Map
Showing Proposed Site
Channel 23

Raystay Company
Lancaster, Pennsylvania

R. L. HOOVER
CONSULTING
TELECOMMUNICATIONS ENGINEER

2006-A3-TF-024

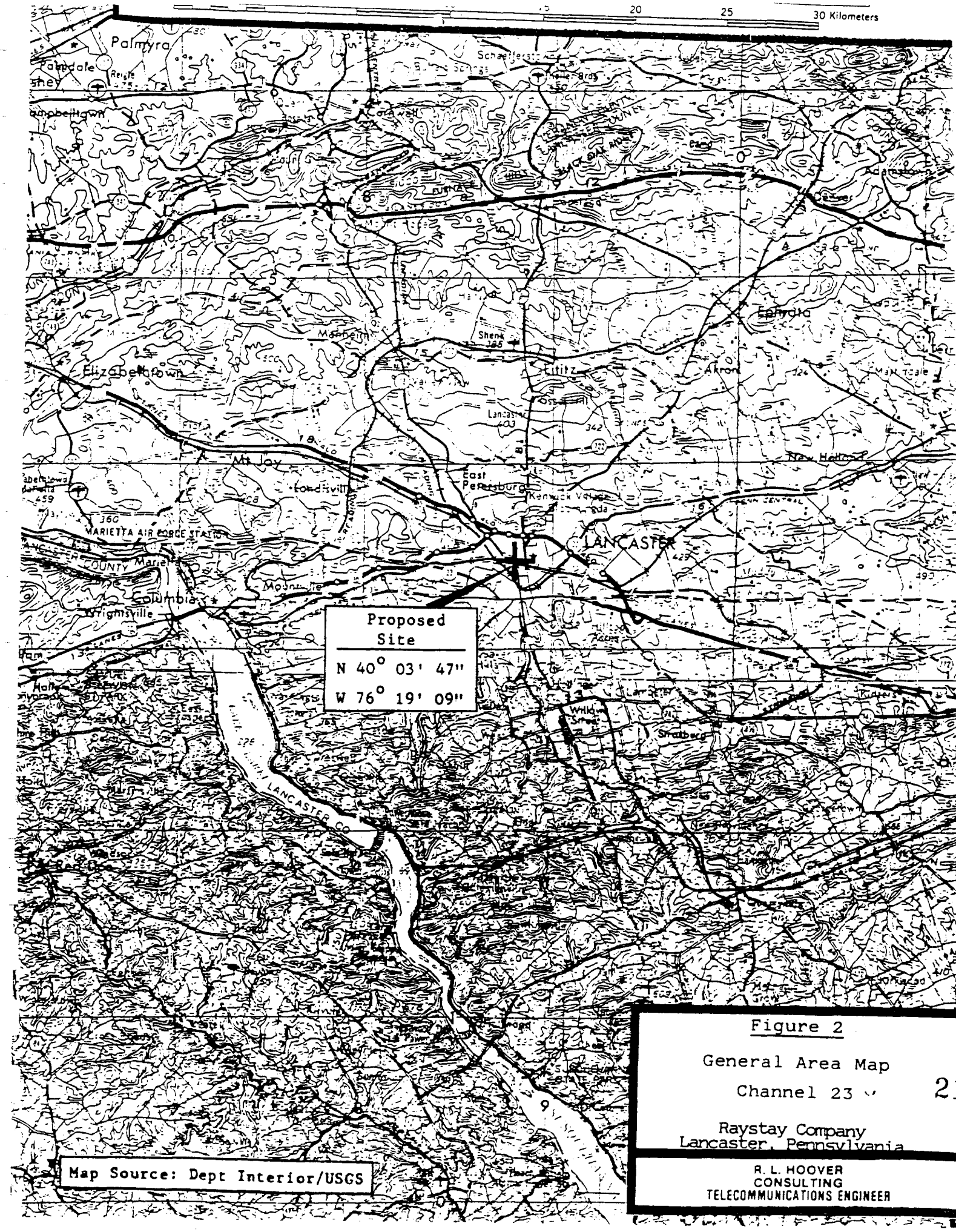


Figure 2

General Area Map

Channel 23

Raystay Company
Lancaster, Pennsylvania

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